

DOCKET NO.: GLIS-0161

PATENT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Brian C. Froehler, et al.

Confirmation No.: Not Yet Assigned

Application No.: 10/730,643

Group Art Unit: Not Yet Assigned

Filing Date: December 8, 2003

Examiner: Not Yet Assigned

For: **ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION WITH OLIGOMERS CONTAINING ODIFIED PYRIMIDINES**

DATE OF DEPOSIT: *January 29, 2004*

I HEREBY CERTIFY THAT THIS PAPER IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL, POSTAGE PREPAID, ON THE DATE INDICATED ABOVE AND IS ADDRESSED TO THE UNITED STATES PATENT AND TRADEMARK OFFICE, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450.

Elizabeth A. McLoud

TYPED NAME: Elizabeth A. McLoud

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 CFR § 1.56 and in accordance with 37 CFR §§ 1.97-1.98, information relating to the above-identified application is hereby disclosed. Inclusion of information in this statement is not to be construed as an admission that this information is material as that term is defined in 37 CFR § 1.56(b).

- ☒ In accordance with § 1.97(b), since this Information Disclosure Statement is being filed either within three months of the filing date of the above-identified application, within three months of the date of entry into the national stage of

the above identified application as set forth in § 1.491, before the mailing date of a first Office Action on the merits of the above-identified application, or before the mailing date of a first Office Action after the filing of request for continued examination under § 1.114, no additional fee is required.

- ☐ In accordance with § 1.129(a), this Information Disclosure Statement is being filed in connection with ☐ the first or ☐ second After Final Submission, therefore:

☐ Certification in Accordance with § 1.97(e) is attached; or

☐ The fee of \$180.00 as set forth in § 1.17(p) is attached.

- ☐ In accordance with § 1.97(c), this Information Disclosure Statement is being filed after the period set forth in § 1.97(b) above but before the mailing date of either a Final Action under § 1.113 or a Notice of Allowance under § 1.311, or before an action that otherwise closes prosecution in the application, therefore:

☐ Certification in Accordance with § 1.97(e) is attached;

or

☐ The fee of \$180.00 as set forth in § 1.17(p) is attached.

- ☐ In accordance with § 1.97(d), this Information Disclosure Statement is being filed after the mailing date of either a Final Action under § 1.113 or a Notice of Allowance under § 1.311 but before, or simultaneously with, the payment of the Issue Fee, therefore included are: Certification in Accordance with § 1.97(e); and the submission fee of \$180.00 as set forth in § 1.17(p).

- ☐ Copies of each of the references listed on the attached Form PTO-1449 are enclosed herewith.

- ☒ Copies of references listed on the attached Form PTO-1449 are enclosed herewith
- ☒ Copies of references listed on the attached Form PTO 1449 are not required to be submitted pursuant to the June 30, 2003 recent revisions to 37 CFR § 1.98(a)(2)(i).

EXCEPT THAT:

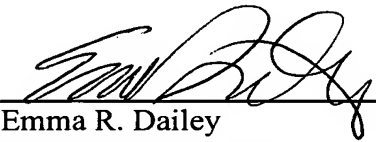
- ☐ In view of the voluminous nature of references [list as appropriate], and the likelihood that these references are available to the Examiner, copies are not enclosed herewith.
- ☒ In accordance with § 1.98(d), copies of the following references listed on the attached Form PTO-1449 are not enclosed herewith because they were previously cited by or submitted to the U.S. Patent and Trademark Office in patent application(s) for which a claim for priority under 35 U.S.C. § 120 have been made in the instant application:
- ☒ Copies of references **1-28 and 117-119** listed on the attached Form PTO-1449 were previously cited by or submitted to the Patent and Trademark Office in prior Application No. **07/799,824 now U.S. Patent No. 5,484,908**, filed **November 26, 1991**; copies of references **29-49, 76 and 120-129** listed on the attached Form PTO-1449 were previously cited by or submitted to the Patent and Trademark Office in prior Application No. **07/976,103 now U.S. Patent No. 5,645,985**, filed **November 25, 1992**; copies of references **50-59, 94 and 130** listed on the attached Form PTO-1449 were previously

cited by or submitted to the Patent and Trademark Office in prior Application No. **08/338,352 now U.S. Patent No. 6,235,887**, filed **November 14, 1994**; copies of references **60-68, 95-101 and 131-140** listed on the attached Form PTO-1449 were previously cited by or submitted to the Patent and Trademark Office in prior Application No. **08/599,738 now U.S. Patent No. 6,380,386**, filed **December 12, 1996**; copies of references **69-85, 102-116 and 141-147** listed on the attached Form PTO-1449 were previously cited by or submitted to the Patent and Trademark Office in prior Application No. **10/024,818**, filed **December 18, 2001**.

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- ☐ The relevance of those listed references which are not in the English language is as follows:
- ☒ There are no listed references which are not in the English language.

Date: January 29, 2004



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Form PTO-1449 Modified List of Patent and Publications Cited by Applicant (Use several sheets if necessary) U.S. Department of Commerce Patent and Trademark Office	Docket No. GLIS-0161	Application No. 10/730,643
	Applicant Brian C. Froehler, et al.	
	Filing Date December 8, 2003	Group Not Yet Assigned
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)		
1	Balzarini, et al., "Incorporation of 5-substituted pyrimidine nucleoside analogs into DNA of a thymidylate synthetase-deficient murine FM3A carcinoma cell line," <i>Chem. Ab.</i> , 1985 , 103(3), 16283a	
2	Beal, et al., "Second structural motif for recognition of DNA by oligonucleotide-directed triple-helix formation," <i>Science</i> , 1990 , 251, 1360-1363	
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4	Cooney, et al., "Site-specific oligonucleotide binding represses transcription of the human c-myc gene in vitro," <i>Science</i> , 1988 , 241, 456-459	
5	Fedorovo, et al., "Complementary addressed modification of double-stranded DNA within a ternary complex," <i>FEBS</i> , 1988 , 228, 273-276	
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	31	Clivio, et al., "Synthesis and purification of oligonucleotides containing sulfur substituted nucleobases: 4-thiouracil, 4-thiothymine and 6-mercaptopyrine," <i>Tet. Letts.</i> , 1992 , 33(1), 65-68	
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	49	Young, et al., "Triple helix formation inhibits transcription elongation in vitro," <i>Proc. Natl. Acad. Sci.</i> , 1991 , 88, 10023-10026	
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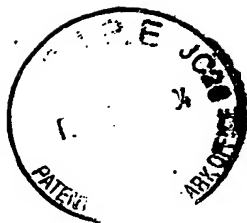
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	51	Casey, et al., "Rates of formation and thermal stabilities of RNA-DNA duplexes at high concentration of formamide," <i>Nuc. Acids Res.</i> , 1997 , 4(5), 1539-1552	
	52	Hamaguchi, et al., "The effect of electrolytes on the stability of the deoxyribonucleate helix," <i>J. Am. Chem. Soc.</i> , 1962 , 84, 1329-1338	
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61	<i>Biochim. Biophys. Acta</i> , 1993, 1141, 262	
62	<i>J. Med. Chem.</i> , 1996, 39, 1521	
63	<i>J. Pharm. Chem.</i> , 23, Engl. Translation from Khimoiko-farmatsevticheskii Zhurnal, June 1989, 23(6), 705-707	
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66	<i>Chemical Abstract</i> , 1995, 106, 84632	
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	71	DeClercq, et al., "Thymidylate synthetase as target enzyme for the inhibitory activity of 5-substituted 2'-deoxyuridines on mouse leukemia L1210 cell growth," <i>Molecular Pharmacology</i> , 1980 , 19, 321-330	
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81	Robins, et al., <i>J. Org. Chem.</i> , 1983 , 48, 1854-1862	
82	Robins, et al., <i>Tet. Letts.</i> , 1981 , 22, 421-424	
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U. S. PATENT DOCUMENTS							
Examiner Initial		Document No.	Date	Name	Class	Subclass	
	86	4,415,732	11/15/83	Caruthers, et al.			
	87	4,458,066	07/03/84	Caruthers, et al.			
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	89	4,904,582	02/27/90	Tullis			
	90	4,959,463	09/25/90	Froehler, et al.			
	91	5,264,423	11/23/93	Cohen, et al.			
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	Applicant Brian C. Froehler, et al.	
	Filing Date December 8, 2003	Group Not Yet Assigned
	Confirmation No. Not Yet Assigned	

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